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ABSTRACT

To Examine and Plan for Occupational Requisites and Employment (Project EXPLORE) was a federally funded program in its fourth year of operation in two Queens (New York) high schools in 1992-93. It served 451 limited-English-speaking students of varied language backgrounds with less than two years of schooling in English. The project's two components were: (1) instructional services in English as a Second Language (ESL), native language arts (NLA), mathematics, science, social studies, and business/vocational education; and (2) support services, including development of curriculum and instructional materials in the students' native languages, staff development, and parent involvement activities. The project carried out all specified activities and met all objectives except that for ESL achievement, although in ESL, achievement gains were significant. While no objective for attendance was specified, the attendance rate for participating students was higher than in the previous year and no students dropped out. Grade retention also decreased. The project was most effective in development and translation of curriculum materials into Spanish, Vietnamese, and Chinese, especially in the areas of science and aviation mechanics at one school. The primary recommendations for program improvement is investigation of reasons for small ESL gains. (MSE)

ED 370 380

OREA Report

To Examine and Plan for
Occupational Requisites and Employment
(Project EXPLORE)
Transitional Bilingual Education Grant T003A90129
FINAL EVALUATION REPORT
1992-93

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Occupational Requisites and Employment
(Project EXPLORE)
Transitional Bilingual Education Grant T003A90129
FINAL EVALUATION REPORT
1992-93

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EXECUTIVE SUMMARY

To Examine and Plan for Occupational Requisites and Employment (Project EXPLORE) was an Elementary and Secondary Education Act (E.S.E.A.) Title VII-funded project in its fourth year of operation at Long Island City and Aviation High Schools in Queens. Project EXPLORE served a total of 451 students of limited English proficiency (LEP) who had attended an English-speaking school system for under two years. This was 80 more than the enrollment for the previous year, reflecting the continuing need to serve arriving immigrant students.

There were two components to Project EXPLORE: (1) instructional services to LEP students in English as a second language (E.S.L.); native language arts (N.L.A.); and the content area subjects of mathematics, science, and social studies, and (2) support services including the development of curriculum and teaching materials in the students' native language, staff development, and parental involvement.

Project EXPLORE carried out all activities specified in its original design and met all of its objectives except for E.S.L. The project met its objectives for N.L.A.; the content areas of mathematics, science, social studies, and business/vocational subjects; curriculum development; staff development; and parental involvement. Even though the project did not propose an objective for attendance, the attendance rate for participating students was higher than it had been the previous year and no students dropped out. There was also a substantial drop in the number of students retained in grade from the previous year. Although the project failed to meet its E.S.L. objective, students' gains on the LAB were statistically significant.

The project was most effective in the development and translation of curriculum materials into Spanish, Vietnamese, and Chinese, especially in the areas of science and aviation mechanics at Aviation High School. The Chinese bilingual aviation textbooks *Aircraft Engine Maintenance and Operation* and *Aviation Power Plant* are the first to be published in the United States. The Chinese edition of the "RCT Science Review" which was translated by the project staff, has been widely circulated among Chinese students.

The conclusions, based on the findings of this evaluation, lead to the following recommendation to the project:

- Investigate the reason for the small proportion of students showing gains on the Language Assessment Battery. Attempt to rectify this by developing materials and offering intensive E.S.L. instruction to newly arrived immigrant students.

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I. INTRODUCTION

This report documents the Office of Research, Evaluation, and Assessment's (OREA's) evaluation of the Elementary and Secondary Education Act (E.S.E.A.) Title VII-funded project, To Examine and Plan for Occupational Requisites and Employment (Project EXPLORE).

PROJECT CONTEXT

The project operated at Long Island City High School and Aviation High School, both in the borough of Queens. This part of New York has experienced a steady increase in the number of immigrant families. In the past four years, the Latino population increased to almost 150,000 and the Asian-American population increased nearly threefold to 152,000. Approximately 12 percent of the families in this area were low-income, and 9 percent had children in the public school system who were limited English proficiency (LEP).

The student population at Long Island City High School for 1992-93 was similar in distribution to that of the surrounding community. Of the 1,889 students who registered at Long Island City High School, 39 percent were Latino, 29 percent were European-American, 18 percent were Asian-American, 13 percent were African-American, and 1 percent was Native-American. Of the 2,022 students enrolled at Aviation High School, 56 percent were Latino, 17 percent were African-American, 14 percent were European-American, and 12 percent were Asian-American (numbers don't add up to 100% due to rounding).

Long Island City High School is an old building (constructed in 1905). A visit by an OREA consultant found classrooms well equipped with instructional materials, although many of the computers were not in working order. Aviation High School, built in 1958, reflected the average rating it had received for overall appearance in the New York City Public Schools 1991-92 School Profile.

STUDENT CHARACTERISTICS

Project EXPLORE served LEP students in ninth through twelfth grade who had been in the United States for less than two years. (See Table 1.) Scores at or below the 40th percentile on the Language Assessment Battery (LAB) determined LEP status. Other considerations of the project were low native language literacy and student willingness to participate, as determined by personal interviews with the guidance counselor.

TABLE 1

Number of Students in Project EXPLORE,
by Site and Grade

Site	Grade Level				Total
	9	10	11	12	
Long Island City	64	60	94	78	296
Aviation High School	20	35	39	61	155
Total	84	95	133	139	451

The project served a total of 451 students; male students numbered 292 (64.7 percent) and female 159 (35.3 percent). The native language of the majority of participants was Spanish, followed by Chinese, Korean, and Vietnamese. (See Table 2.)

TABLE 2

Students' Native Languages

Language	Number of Students	Percentage
Spanish	281	62.3
Korean	58	12.9
Mandarin	37	8.2
Vietnamese	32	7.1
Other Chinese	20	4.4
Cantonese	18	4.0
Ukrainian	2	0.4
Unreported	2	0.4
Portuguese	1	0.2
Total	451	99.9*

*Total does not equal 100 percent due to rounding.

Of the students whose country of origin was reported, 30 percent came from Korea, 26 percent from China, 14 percent from Hong Kong, 25 percent from South and Central American and Caribbean countries, and 5 percent from other countries

(See Table 3.) Most (84 percent) of the participants came from low-income families, as evidenced by eligibility for the free-lunch program.

Table 3

Students' Countries of Origin

Country of Origin	Number of Students
Korea	58
China	50
Hong Kong	26
Dominican Republic	11
Peru	11
Ecuador	8
Colombia	6
Mexico	3
Puerto Rico	3
Costa Rica	2
El Salvador	2
Iraq	2
Nicaragua	2
Other	8
Unreported	259
Total	451

Needs Assessment

A needs assessment by teachers and other administrative staff at the two schools indicated three primary needs: (1) to provide LEP students with intensive

English and native language instruction and support services to improve their school performance; (2) to offer staff development activities; and (3) to provide parents of participants with English as a second language (E.S.L.) courses and informational workshops on the educational system and project goals.

PROJECT OBJECTIVES

Student Objectives

- By June 1993, 85 percent of the target population will increase their English language proficiency as measured by the Language Assessment Battery (LAB).
- By June 1993, 85 percent of participating students will demonstrate statistically significant gains in comprehension of their native language as shown by a locally developed native language test.
- By June 1993, 85 percent of the participating students will achieve a passing grade of at least 65 on a teacher-developed test in the content areas of mathematics, science, and social studies.
- By June 1993, 70 percent of project students will demonstrate increased knowledge of career awareness as a result of successfully completing five units of instruction focusing on career options and career skills requirements provided by local businesses, as measured by teacher-made tests for each unit.

Curriculum Development

- By June 1993, curriculum specialists will have developed or translated at least one subject-matter oriented instrument unit for E.S.L., math, science, and social studies, as measured by a review of the project-developed instructional materials inventory.

Staff Development Objectives

- By June 1993, 75 percent of project staff will have enrolled in and successfully completed at least one graduate level course, or will have participated in staff development activities, as evidenced by a review of college transcripts, educational certificates, and attendance records.

Parental Involvement Objectives

- By June 1993, 25 percent of participating parents and adult siblings will have participated in at least two program and school meetings.
- By June 1993, 25 percent of participating parents and adult siblings will have participated in an E.S.L. training class offered by the project.

PROJECT IMPLEMENTATION

During the 1992-93 school year, Project EXPLORE provided instructional and support services to 451 students and their families. The project's main goal was to promote acquisition of language and content area skills by LEP students.

Project EXPLORE offered parental involvement and in-service staff development activities. The project also provided reimbursement to staff for college credits. Curriculum specialists translated materials into Chinese and Spanish.

Materials, Methods, and Techniques

Participating schools offered E.S.L. at beginning, intermediate, advanced, and transitional levels, and native language arts (N.L.A.) on literacy to advanced placement levels. The project stressed bilingual instructional methodologies in the content areas.

Teachers of participating students used a wide array of strategies and techniques, including cooperative learning, reading groups, student-produced newsletters, research projects, and experiments. Computers supplemented classroom instruction.

For a list of instructional materials used in the project, please see Appendix A.

Capacity Building

At the end of funding by Title VII, both schools plan to assume the cost of programming. Next year, Aviation High School will assume 50 percent of the cost of two resource specialists, using tax-levy funds.

Staff Qualifications

Title VII staff. The project director, two bilingual curriculum specialists, an educational assistant, a family assistant, and a secretary were funded by Title VII. For a description of their degrees and language competencies, see Table 4.

TABLE 4

Project Staff Qualifications

Position Title	Degree(s)	Language Competence
Project Director	Ph.D.	Chinese
Bilingual Curriculum Specialist	M.A.	Chinese
Bilingual Curriculum Specialist	B.A.	Spanish
Educational Assistant	B.S.	Vietnamese
Family Assistant	B.A.	Chinese
School Secretary	B.A.	Chinese

The project director, a bilingual curriculum specialist, family assistant, and secretary were native speakers of Chinese. The other bilingual curriculum specialist was a native speaker of Spanish, and the educational assistant was a native speaker of Vietnamese.

The project director's responsibilities included supervising and coordinating activities, selecting and training staff, and providing evaluation data. The director had more than six years' experience teaching LEP students.

The bilingual curriculum specialists' responsibilities were to assist classroom teachers in the development and implementation of instructional activities, provide in-service training to teachers, help plan activities for parents of participating students, and select instructional material. Each specialist had over three years experience in the field.

Other staff. Tax-levy funds paid the salaries of the 14 classroom teachers who provided instructional services to project students. Nine were teaching proficient* in Spanish. Twelve teachers held master's degrees, and two held bachelor's degrees. All teachers had high school certification in the subject area they taught.

Staff development. Teachers received tuition assistance toward college courses in E.S.L. or bilingual education. The bilingual curriculum specialists, the educational assistant, and the family assistant attended seminars organized by the project. Workshops focused on E.S.L. and bilingual education.

Instructional Time Spent on Particular Tasks

LEP students received one 40-minute period of instruction daily in mathematics, science, and social studies. At the beginning of the school year, 75 percent of the class instruction was conducted in the native language of the targeted population and 25

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*Teaching proficiency is defined as the ability to use LEP students' native language in teaching language arts or other academic subjects.

percent in English. Later in the school year, this ratio was gradually reversed, so that 25 percent of class instruction was in the native language of the targeted students and 75 percent was in English. See Appendix B for examples of class schedules.

Length of Time Participants Received Instruction

Students had a mean of 8.3 years (s.d.= 0.7) of education in a non-English-speaking school system and 2.5 years (s.d.=1.1) of education in the United States. The median time students participated in Project EXPLORE was 30 months.

Activities to Improve Pre-referral Evaluation Procedures for Exceptional Children

Teachers referred those students thought to be in need of special education services to the School-Based Support Team (S.B.S.T.). No members of the S.B.S.T. were bilingual in Spanish or Chinese. Other staff translated as necessary.

Gifted and talented students were identified by teacher judgment and course grades.

Instructional Services for Students with Special Needs

The project offered computer-assisted instruction (C.A.I.) before or during school hours to students having difficulty in classes. Gifted and talented students were given activities which were enriching and would allow them to progress at their own pace.

PARENT AND COMMUNITY INVOLVEMENT ACTIVITIES

The project sponsored a variety of parental involvement activities, including a parent advisory council (PAC), workshops, E.S.L. classes, career events, and field trips.

Representatives from private business and public institutions were invited to address students in areas of career interests.

II. EVALUATION METHODOLOGY

EVALUATION DESIGN

Project Group's Educational Progress as Compared to That of an Appropriate Non-Project Group

OREA used a gap reduction design to evaluate the effect of language instruction on project students' performance on the standardized tests. Because of the difficulty of finding a valid comparison group, OREA used instead the groups on which the tests were normed. Test scores are reported in Normal Curve Equivalents (N.C.E.s), which are normalized standard scores with a mean of 50 and a standard deviation of 21.1. It is assumed that the norm group had a zero gain in N.C.E.s in the absence of supplementary instruction and that participating students' gains are attributed to project services.

Applicability of Conclusions to All Persons Served by Project

Data were collected from all participating students for whom there were pre- and posttest scores. (There were no pretest data on students who entered the program late, therefore posttest data for them will serve as pretest data for the following year.) Instruments used to measure educational progress were appropriate for the students involved. The LAB is used throughout New York City to assess growth in English skills among students similar to those served by Project EXPLORE.

INSTRUMENTS OF MEASUREMENT

OREA compared pre- and posttest scores on the LAB to assess the E.S.L. objective. The N.L.A. objective as well as the content area objectives in mathematics,

science, social studies, and career education were assessed through course grades, as specified.

All students were tested at the appropriate grade level. The language of the LAB was determined by the test itself.

According to the publisher's test manual, all standardized tests used to gauge project students' progress are valid and reliable. Evidence supporting both content and construct validity is available for the LAB. Content validity is confirmed by an item-objective match and includes grade-by-grade item difficulties, correlations between subtests, and the relationship between the performance of students who are native speakers of English and students who are LEP. To support reliability, KR20 coefficients and standard errors of measurement are reported by grade by form for each subtest and total test. Grade reliability coefficients based on LEP students on the English version ranged from .88 to .96 for individual subtests and from .95 to .98 for the total test.

DATA COLLECTION

To gather qualitative data, an OREA evaluation consultant carried out on-site and telephone interviews with the project director several times during the school year and also observed two classes on each of two visits. The project evaluator collected the data and prepared the final evaluation report in accordance with the New York State E.S.E.A. Title VII Bilingual Education Final Evaluation Report format, which was adapted from a checklist developed by the staff of the Evaluation

Assistance Center (EAC) East in consultation with the Office of Bilingual Education and Minority Language Affairs (OBEMLA).

Proper Administration of Instruments

Qualified personnel received training in testing procedures and administered the tests. Test administrators followed guidelines set forth in the manuals accompanying standardized tests. Time limits for subtests were adhered to; directions were given exactly as presented in the manual.

Testing at 12-month Intervals

Standardized tests were given at 12-month intervals, following the published norming dates.

Data Analysis

Accurate scoring and transcription of results. Scoring, score conversions, and data processing were accomplished electronically by the Scan Center of the Board of Education of the City of New York. Data provided by the Scan Center were analyzed in the Bilingual, Multicultural, and Early Childhood Evaluation Unit of OREA. Data collectors, processors, and analysts were unbiased and had no vested interest in the success of the project.

Use of analyses and reporting procedures appropriate for obtained data. To determine the proportion of students acquiring skills in English, OREA computed the percentage of students showing gains on the LAB. To assess the significance of students' achievement in English, OREA computed a correlated *t*-test on LAB N.C.E.

scores. The *t*-test determined whether the difference between the pre- and posttest scores was significantly greater than would be expected by chance variation alone.

The only possible threat to validity of any of the above instruments might be that LAB norms were based on the performance of English proficient (EP) rather than LEP students. Since OREA was examining gains, however, this threat was inconsequential—the choice of norming group should not affect the existence of gains.

III. FINDINGS

PARTICIPANTS' EDUCATIONAL PROGRESS

Participants' Progress in English

The OREA evaluation consultant visited a beginning E.S.L. class at Long Island City High School. The classroom was well equipped, and students' work was on display. The teacher dictated a series of questions to the students. Students then volunteered to write the individual questions on the board while the rest of the class helped them. The lesson was teacher directed, using a whole language approach. Students communicated with each other mostly in Spanish, interspersed with English words. The teacher, however, presented the lesson entirely in English.

The evaluation objective for English as a second language was:

- By June 1993, 85 percent of the target population will increase their English language proficiency as measured by the Language Assessment Battery (LAB).

There were complete pre- and posttest scores on the LAB for 242 students from grades nine through twelve. (See Table 5.) Although the mean gain of 5.7 N.C.E.s (s.d.= 10.5) was statistically significant ($p<.05$), only 63.6 percent of the students who took the test showed gains.

The project did not meet its objective for E.S.L. this year, although it did so last year. In the future the project plans to provide intensive E.S.L. classes to recently arrived immigrant students.

TABLE 5

Pretest/Posttest N.C.E. Differences on the
Language Assessment Battery, by Site

High School	Total number of project students	Number of students for whom data were available	Pretest		Posttest		Difference		*t* value
			Mean	S.D.	Mean	S.D.	Mean	S.D.	
Long Island City	296	199	12.8	11.8	18.8	14.7	5.9	9.5	8.82*
Aviation	155	43	26.9	13.9	31.6	17.4	4.7	14.5	2.11*
Total	451	242	15.3	13.3	21.0	15.9	5.7	10.5	8.43*

*$p<.05$

- Students at both sites made significant gains on the LAB.

Participants' Progress In Native Language Arts

The evaluation objective for N.L.A. was:

- By June 1993, 85 percent of participating students will demonstrate statistically significant gains in comprehension of their native language as shown by a locally developed native language test.

Over 85 percent of students passed their N.L.A. courses at both sites in both the fall and the spring. (See Table 6.)

Project EXPLORE met its N.L.A. objective, as it had done last year.

TABLE 6

Passing Grades in Native Language Arts, by Site

High School	Fall		Spring	
	Number Enrolled	Percent Passing	Number Enrolled	Percent Passing
Long Island City	114	88.6	113	86.0
Aviation	80	93.8	80	96.3

LEP Participants' Academic Achievement

Teachers used a wide array of strategies and techniques, including cooperative learning, research projects, and C.A.I.

The OREA evaluation consultant observed an accounting/business class at Long Island City High School and a basic science class at Aviation High School.

At Long Island City High School, the teacher presented a lesson on electronic mail (E-mail). The objective of the lesson was to reply to a message sent by a school

in Norway using E-mail. The Norwegian students wanted to know more about the American school system. The computers were not equipped with modems or telephone lines, so students were not able to practice sending E-mail themselves.

At Aviation High School, the teacher presented a science lesson on temperature. Students were organized into groups of five to conduct an experiment on temperature and heat. The teacher used a text that was written in both English and Chinese. The lesson was individually paced, and the teacher used an E.S.L. approach. Students communicated with each other in Chinese and English. The teacher presented the lesson in English and used Chinese for clarification when necessary.

The content area objectives were:

- By June 1993, 85 percent of the participating students will achieve a passing grade of at least 65 on a teacher-developed test in the content areas of mathematics, science, and social studies.
- By June 1993, 70 percent of project students will demonstrate increased knowledge of career awareness as a result of successfully completing five units of instruction focusing on career options and career skills requirements provided by local businesses, as measured by teacher-made tests for each unit.

In all mathematics, science, and social studies courses, at least 85 percent of participating students at all grade levels received passing grades. At least 80 percent of the students passed their business/vocational courses. (See Table 7.)

Project EXPLORE met both its objectives for content area subjects, as it had done the previous year.

TABLE 7

Passing Grades in Content Area Courses, by Site and Subject Area

High School	Subtest	Fall 1992		Spring 1993	
		Number of students for whom data were reported	Percent Passing	Number of students for whom data were reported	Percent Passing
Long Island City	Mathematics	220	85.0	225	86.2
	Science	239	85.8	224	85.0
	Social Studies	265	86.8	250	85.4
	Business/Voc.	64	87.5	64	80.3
Aviation	Mathematics	122	86.1	122	86.9
	Science	87	88.5	75	85.3
	Social Studies	130	88.5	137	87.6
	Business/Voc.	138	89.9	141	92.9

- Participating students had high passing rates for all content area courses at both sites and during both semesters.

FORMER PARTICIPANTS' ACADEMIC PROGRESS IN ENGLISH LANGUAGE CLASSROOMS

The project did not provide any information on former project participants. Fifty-five students were mainstreamed in the previous year.

OVERALL EDUCATIONAL PROGRESS ACHIEVED THROUGH PROJECT

Grade Retention

Project EXPLORE did not propose any objective for grade retention. Two participating students were retained in grade, compared to 23 in the previous project year.

Dropout Prevention

Project EXPLORE did not propose any specific dropout prevention objective. No project students dropped out of school either this year or last year.

Attendance

The project did not propose a specific attendance objective. At Long Island City High School, project students' attendance was 96.6 percent, up from the previous year's 94.1 percent. At Aviation High School, project students' attendance was 95.8 percent, also up from the previous year's 95.0 percent.

The mainstream attendance rate for 1991-92, the last year for which information was available was 80.1 percent at Long Island City High School and 88.0 percent at Aviation High School.

Placement in Gifted and Talented Programs

No students were placed in a program for the gifted and talented either this year or last year.

The project did not propose an objective in this area.

Enrollment in Post-secondary Educational Institutions

No objective was proposed in this area. Similar to last year, no graduating seniors indicated that they would be enrolling in post-secondary educational institutions upon graduation.

CASE STUDY

C.Q.N. and her family came to the United States from China. She entered Long Island City High School almost a month late as a tenth grade student. C.Q.N. knew very little English and failed E.S.L. English and social studies her first semester at school. She was recommended for the after-school tutoring program offered by Project EXPLORE. After two months in the program, C.Q.N. made tremendous progress and, at the end of the term, was able to pass all her courses.

H.Y. immigrated from Vietnam to the United States with his parents in 1993. H.Y. had very little formal education and had great difficulty coping at Long Island City High School. After entering Project EXPLORE, he received instruction in Vietnamese and English. This helped him to catch up with his school work in a short period of time.

STAFF DEVELOPMENT OUTCOMES

Staff Development Objectives

- By June 1993, 75 percent of project staff will have enrolled in and successfully completed at least one graduate level course, or will have participated in staff development activities, as evidenced by a review of college transcripts, educational certificates, and attendance records.

During the school year, project staff members attended the following conferences: the OBEMLA Management Institute and National Association for Bilingual Education (NABE) Conference, Annual New York State Title VII Management Institute and State Association for Bilingual Education (SABE) Conference, the Annual National Conference on Asian and Pacific Education, and the Multicultural Fair at Long Island City High School. Topics covered at these conferences included project management, capacity building, curriculum material evaluation, effective program management of Title VII, and leadership and empowerment.

The project director reported that during the 1992-93 school year, more than 75 percent of the participating staff successfully completed at least one graduate level course or participated in staff development activities.

The project met its staff development objective, as it had done last year.

CURRICULUM DEVELOPMENT OUTCOMES

- By June 1993, curriculum specialists will have developed or translated at least one subject-matter oriented instrument unit for E.S.L., math, science, and social studies, as measured by a review of the project-developed instructional materials inventory.

The project staff successfully translated the following materials: *Operation and Maintenance of Aircraft Engines*, Book 2 (Chinese), *Aircraft Intake and Exhaust System*,

Book 3 (Chinese), *Concepts in Modern Biology*, Books 1-5 (Chinese), RCT Global Studies Review (Vietnamese), Glossary for U.S. Government and History (Vietnamese), Student Handbook for Aviation High School (Spanish).

Project met its objective for curriculum development, as it had done last year.

The Chinese bilingual aviation textbooks *Aircraft Engine Maintenance and Operation* and *Aviation Power Plant* are the first to be published in the United States.

PARENTAL INVOLVEMENT OUTCOMES

Project EXPLORE proposed one parental involvement objective:

- By June 1993, 25 percent of participating parents and adult siblings will have participated in at least two program and school meetings.

The project offered workshops, E.S.L. classes, and field trips to parents of participating students. The project director reported that more than 25 percent of parents attended either two parent-teacher conferences which informed them about their children's progress at school, or two student/parent workshops.

The project met its parent involvement objective. It had failed to meet this objective last year.

IV. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

ACHIEVEMENT OF OBJECTIVES

Project EXPLORE carried out all activities specified in its original design and met all of its objectives except for E.S.L. The project met its objectives for N.L.A.; the content areas of mathematics, science, social studies, and business/vocational subjects; staff development; curriculum development; and parental involvement.

Participating students in Project EXPLORE showed academic progress. Of the 451 participating students in grades nine through twelve, 449 were promoted to the next grade. The students showed gains in English, N.L.A., and the content area subjects of mathematics, science, social studies, and business/vocational subjects. The project failed to meet its E.S.L. objective, although gains at both schools were significant.

Project services not only benefited the students academically but also increased their awareness of the importance of education. Attendance rates were higher than they were the previous year. No project students dropped out of school during 1992-93. There was a substantial drop in the number of students retained in grade from the previous year.

Teachers attended college courses to increase their knowledge of bilingual and E.S.L. instruction, as well as in-service workshops and conferences.

The parents of participating students showed greater involvement in project and school activities than they had the previous year.

MOST AND LEAST EFFECTIVE COMPONENTS

The most effective component of the project was the development and translation of curriculum materials into Spanish, Vietnamese, and Chinese, especially in the areas of science and aviation mechanics. The Chinese edition of the "RCT Science Review," which was translated by the project staff and published by the High School Division of the Board of Education of the City of New York, has been widely circulated among Chinese-speaking students.

By conducting English night school classes the project was able to overcome the problem of attracting parents to the project due to conflicting work schedules.

RECOMMENDATION TO ENHANCE PROJECT EFFECTIVENESS

- Investigate the reason for the small proportion of students showing gains on the Language Assessment Battery. Attempt to rectify this by developing materials and offering intensive E.S.L. instruction to newly arrived immigrant students.

APPENDIX A

Instructional Materials

E.S.L.				
Grade	Title	Author	Publisher	Date of Publication
9-10	Turning Points: Communicating in English	Giuliano Iantorno, Mario Papa	Addison-Wesley	1989
9	Skills Sharpeners for E.S.L.	Judy Defilippo	Addison-Wesley	1984
9-10	Tales of Mystery & the Unknown	Robert Potter	Global Book Co.	1985
9-10	Map Skills	Bernard A. Fox	Continental Press	1989
9-10	Vocabulary for High School Students	Harold Levine	Amsco	1982
	Beyond Time and Space	Robert Potter	Global Book Co.	1985
Beg.	Journeys to Fame	Kenneth Kieszok	Learning Trends	1978
Inter.	What's the Story	Linda Markstein	Longman	1989

APPENDIX A

Instructional Materials, cont'd.

N.L.A.				
Grade	Title	Author	Publisher	Date of Publication
9-12	Teatro Hispano	Jackson/Guillen	N.T.C.	1989
9-12	Literatura Y Arte	Silva	Holt Reinhart	1977
9-12	Don Quijote	Tordy	N.T.C.	1988
9-12	Sombrero de Tres Picos	Alarcon	Oddsey Ross	1985
9	Momentos Hispanos	Luis Cobat	Amsco	1978
10	Literatura & Arte	Copeland-Kile	Holt Reinhart	1989

Mathematics				
Grade	Title	Author	Publisher	Date of Publication
9-10	Consumer Mathematics	Francis French	Amsco	1980
9-10	Sequential Mathematics	Dressler	Amsco	1980
9	Achieving Competence in Mathematics	Mandery	Amsco	1987
9-12	Integrated Mathematics Course I, II, III	Dressler & Keenan	Amsco	1989

APPENDIX A

Instructional Materials, cont'd.

Science				
Grade	Title	Author	Publisher	Date of Publication
8-9	La Materia Y La Energia	Heimler & Price	Charles Merrill	1985
9	Physical Science	Louise Nolon	Heather	1987
9	RCT Science Review	Carl Ruaf & David Keifer	Prentice Hall	1988
10	Biologia	Mario Dihigo	M.Fernandez	1989
10	Biology & Human Progress	Tanzel	Prentice Hall	1986
11	Contemporary Chemistry	Leonard Salana	Weston Wetch	1986
9-10	Physical Science	Ramsey et al	Holt Rinehart	1986
10	Electricity Principals & Application	Richard Fowler	McGraw-Hill	1984
11	Chemicals in Action	Donovan	Holt Rinehart	1987
9	Exploring Material Energy	Kiefer & Raab	Merrill	1985
10	Biology, An Everyday Experience	Kaskel, Hunimer	Merrill	1985
11	Quimica	Smoot, Price & Smith	Merrill	1988

APPENDIX A

Instructional Materials, cont'd.

Social Studies				
Grade	Title	Author	Publisher	Date of Publication
11	Rise of the American Nation	Lewis Paul	Heritage	1987
10	Exploring World History	Sol Holt John O'Connor	Globe Book Company	1983
11	Exploring Our Nation's History	Melvin Schwartz John O'Connor	Globe Book Company	1987
9-10	People and Our World	Adam Kownslar	Holt Rinehart	1981
11	Los Estados Unidos: Su Historia, Su Gobierno	Killoran, Jarett & Cimmer	Jarrett	1992
11	Nueva Historia de los Estados Unidos	Baker Hall et al	Minerva A Books	1980
11	Historia De La Humanidad, Libro 1-2	Daniel Roselle	Giron	1983
11	By the People, For the People	Deborah Short	Center for Applied Linguistics	1992

APPENDIX B

Schedule of Instruction

Long Island City High School				
Period	Grade 9	Grade 10	Grade 11	Grade 12
1	Physical Education	—	U.S. History	E.S.L.
2	Study	E.S.L. Lab 4	E.S.L. lab 4	Writing/Reading Lab
3	E.S.L. Level 1	Chorus 2	Chorus 2	General Chemistry
4	Official Class	Official Class	E.S.L. Level 4	Physical Education
5	Lunch	Sequential Mathematics	Lunch	Spanish Level 8
6	Global Level 2	Biology	Chemistry Lab 4 (Spanish)	Business Law
7	Fundamental Mathematics	Lunch	Spanish	Lunch
8	Physical Science	Aerobics	Consumer Mathematics	U.S. History
9	E.S.L lab 1	Global Level 4	General Chemistry 2	Chemistry lab (Spanish)
10	E.S.L. lab 1	————	Physical Science	————
11	————	——	——	——

The day of a student in Project EXPLORE was divided into class periods of 40 minutes. Each student's schedule was the same Monday to Friday.